

TWO NEW SPECIES OF *GASTROSACCUS* (CRUSTACEA, MYSIDACEA) FROM SANDY BEACHES IN TRANSKEI

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(With 8 figures)

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ABSTRACT

Sampling by means of a sledge from the low-water mark out to a depth of 1.5 m showed clear peaks of maximum distribution for *Gastrosaccus bispinosa* sp. nov. which was more abundant at the upper limit of the low-water mark. *Gastrosaccus longifissura* sp. nov. was more common in the breaker zone. Both species were also collected in the more sheltered waters along the edge of the sandbank inside the mouth of the Mgazana estuary.

The known distribution of *Gastrosaccus psammodytes* Tattersall, 1958, is extended further eastwards as far as Kei Mouth. The appearance of *G. psammodytes* in off-shore plankton samples is discussed. A note on the distribution and a key to the species of *Gastrosaccus* recorded in southern Africa are given.

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INTRODUCTION

Two new species of *Gastrosaccus* (Crustacea, Mysidacea) from sandy beaches in Transkei are described and illustrated. *G. psammodytes* is described from South Africa (Tattersall, O. S. 1958) while other sandy beach mysids are known from various parts of the world. *G. vulgaris* is reported from Japan (Nakazawa 1910) while Gauld & Buchanan (1956) have recorded *G. spinifer* on sandy beaches in Ghana. Macquart-Moulin (1977) notes the distribution of *G. mediterraneus* and *G. spinifer* along Mediterranean sandy shores. *G. sanctus* is known from sandy beaches in the northern hemisphere (Băcescu 1934; Tattersall, W. M. 1927; Tattersall & Tattersall 1951; Moran 1972). In southern Africa *G. sanctus* is recorded from inshore waters (Lazarus 1975) and off-shore waters only (Tattersall, O. S. 1957). Other reports of mysids from sandy beaches are noted by Brown & Talbot (1972).

The two new species reported here are recorded from sandy beaches at Mbotyi (31°28'S) and at Mgazana (31°41'S) on the Pondoland coast, Transkei

(Fig. 1). *G. longifissura* sp. nov. is also recorded from Kei Mouth ($32^{\circ}41'S$), South Africa (Fig. 1), where it occurred with *G. psammodytes*.

The present species overlapped along a 70 m transect into the breaker zone. Sampling was done with a sledge from the low-water mark out to a depth of 1,5 m. Beyond the 1,5 m depth contour, sampling with the sledge apparatus was not possible due to excessive turbulence. Along the transect clear peaks of maximum distribution were evident for each of the two species. *G. bispinosa* sp. nov. was more abundant at the upper limit of the low-water mark, while *G. longifissura* sp. nov. was more common in the breaker zone.

Both species were also collected along the edge of the sandbank inside the mouth of the Mgzana estuary. At night they were taken in the breaker zone with a plankton net (WP 2 net of 190 micron aperture towed by hand in water of 1 to 1,5 m depth). They were absent in surface plankton samples taken at



Fig. 1. Map of the coastline indicating the position of the localities mentioned in the text.

night in the mouth channel of the estuary (samples collected on ten occasions between 1971 and 1973), except in September 1972 when two specimens of *G. bispinosa* sp. nov. were captured (Wooldridge 1977).

DESCRIPTION OF MATERIAL

Gastrosaccus bispinosa sp. nov.

Figs 2-5

Holotype

SAM-A15749 lodged in the South African Museum, Cape Town. Adult female from Mgazana beach (31°42'S), collected by T. Wooldridge, 30 September 1977.

Paratypes

SAM-A15750 lodged in the South African Museum, Cape Town. Numerous adult males and adult females from Mgazana beach (31°42'S), collected by T. Wooldridge, 30 September 1977.

Description

Carapace long, anterior margin produced into a triangular rostrum not covering the eyestalks (Fig. 2A). Apex smoothly rounded. Posterior margin of carapace emarginate, exposing the last thoracic somite. Posterior half of this emargination forming a forwardly directed lobe which overlaps the more proximal portion of the emargination on each side. In lateral view carapace extends posteriorly to cover the whole of the thorax and the first abdominal somite.

Antennule (Fig. 4A), first segment of peduncle slightly shorter than second and third combined. Five or six small setae on outer distal angle. Second segment of peduncle short and armed with three strong spines set obliquely along its outer margin. Inner distal corner with a fine seta. Third segment relatively slender, bearing a curved finger-shaped process on dorsal side at the anterior end. A small spine present just posterior to the process. Outer flagellum swollen at the base and bearing relatively long, flattened setae. In the male the usual hirsute lobe present.

Antennal peduncle extending slightly beyond the distal end of the second segment of the antennular peduncle (Fig. 2A). The second segment of antennal peduncle about two and a half times as long as the third, bearing five plumose setae on the inner margin and two setae on the inner distal angle (Fig. 2B). Third segment with four plumose setae on inner margin and four and two smaller plumose setae on the inner and outer distal corners respectively. Antennal scale as long as peduncle and about three times as long as broad. Outer margin straight, naked, terminating in a strong spine which does not extend beyond the rounded apex of the scale. Inner margin convex and setose (Fig. 2B).

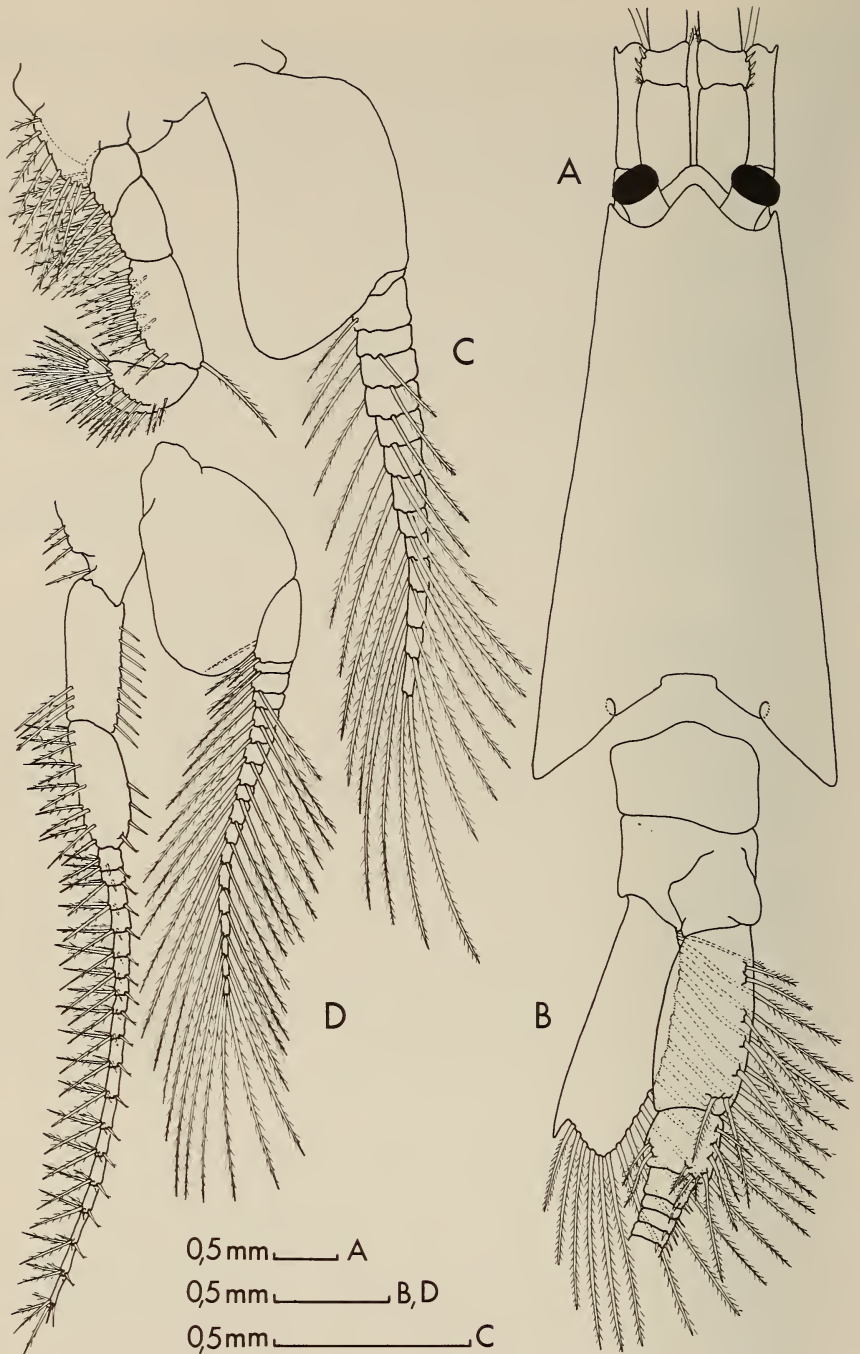


Fig. 2. *Gastrosaccus bispinosa* sp. nov.

A. Carapace in dorsal view. B. Antennae. C. First thoracic appendage.
 D. Eighth thoracic appendage.

Mandible (Fig. 3A) well developed without spine row. Palp long and slender, first segment unarmed. Second and third segments extremely setose, the third segment with a terminal comb-like process and two strong apical spines.

Maxillule (Fig. 3B) three segmented, first and second segments appear to be fused. Lobe from first segment with three short serrated spines and three longer spines armed with a row of fine setae and four to six teeth distally. Third segment drawn out into a well-developed lobe which is armed with a close group of short, strong, spinous and slightly curved spines. Row of six serrated spines along the inner, sub-terminal margin which are setose proximally.

Maxilla (Fig. 3C) typical of the genus.

First thoracic limb with well-developed endite on basal segment (Fig. 2C). Endopod short and robust, densely setose along inner margin. A well-developed seta present on outer distal angle of carpus segment. Dactylus well developed, without claw. First segment of exopod large and expanded, the outer distal angle smooth (exopod twisted in figure). Flagellum fourteen-segmented, each segment with one or two long plumose setae.

Second thoracic limb similar in form to first, dactylus of endopod with claw. First exopod segment with a small tooth on outer distal angle.

Third to eighth thoracic limbs similar in form, but becoming progressively stronger and longer posteriorly. Carpus and propodus of endopod fused and divided into many short subsegments. The number of these subsegments increases posteriorly as follows: in the third limb, ten; in the fourth, eleven; in the fifth, twelve; in the sixth, thirteen; in the seventh, sixteen; in the eighth, eighteen (Fig. 2D). Each subsegment bears a small brush of setae and a small spine on the inner distal angle, and a small spine on the outer distal angle. The first segment of exopod in third to seventh pairs of thoracic limbs large and armed with a strong tooth on outer distal corner. In the eighth pair of appendages this angle is smoothly rounded (Fig. 2D). Flagellum sixteen- to eighteen-segmented, each segment with one or two long plumose setae.

First pleopod of female (Fig. 4B) with long, slender sympod armed proximally with three, and distally with nine, long plumose setae. Exopod about twice as long as wide, armed with one spine-like seta, nine short plumose setae and two relatively long plumose setae at the distal end. Endopod almost four times as long as wide, armed with nine plumose setae distally. Remaining pleopods in the female in the form of simple, unjointed plates, becoming progressively longer on the posterior somites.

First pleopod of the male (Fig. 4D) with swollen sympod, outer margin armed with thirteen long plumose setae. Endopod short, unsegmented, with two terminal plumose setae and a single subterminal spine-like seta. Seven short plumose setae also present, their relative position illustrated in Figure 4D. Exopod composed of thirteen or fourteen segments, each segment armed with two unequal plumose setae.

Second pleopod of the male (Fig. 5A) with large rectangular sympod which



Fig. 3. *Gastrosaccus bispinosa* sp. nov.
A. Mandible. B. Maxillule. C. Maxilla.

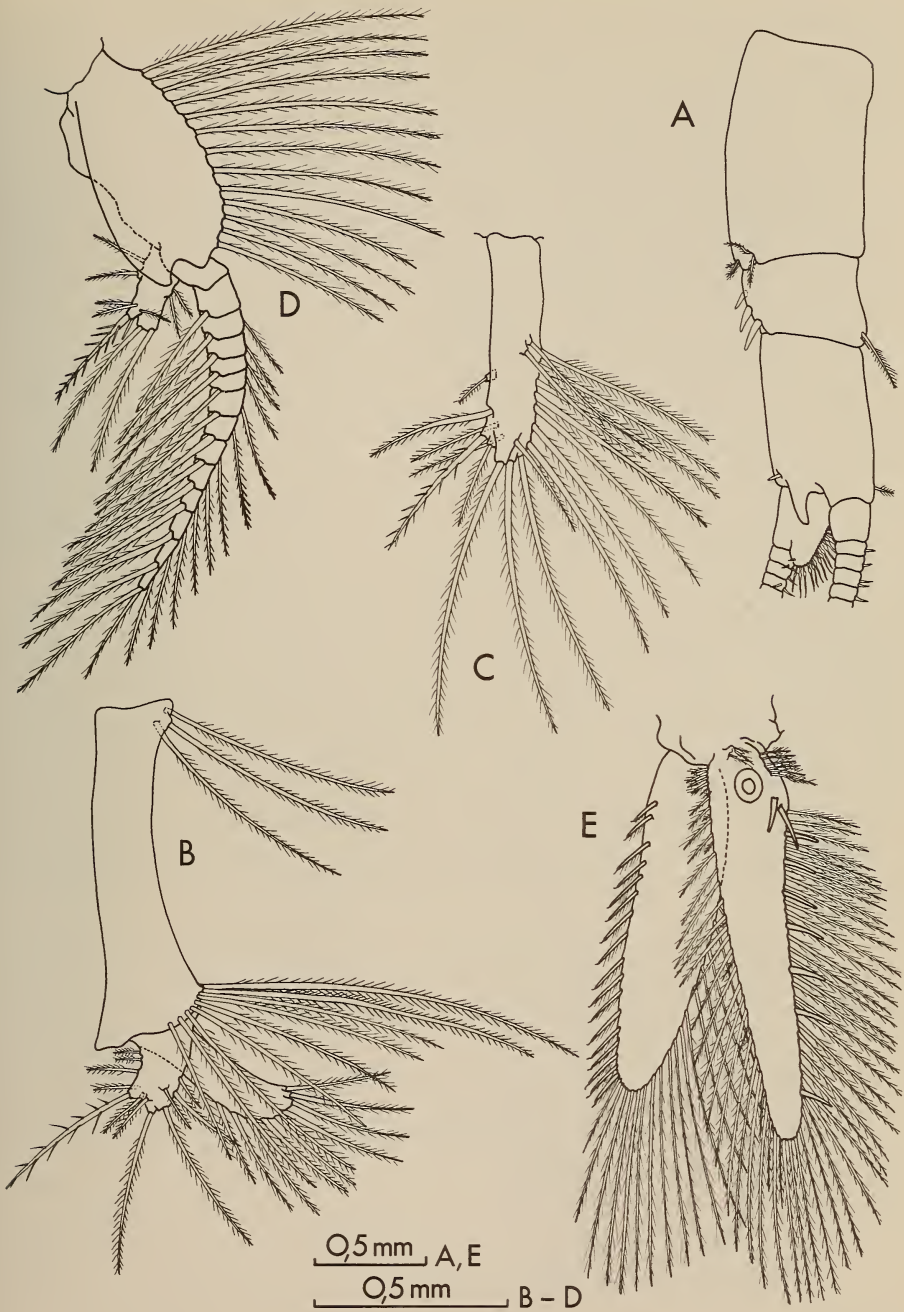


Fig. 4. *Gastrosaccus bispinosa* sp. nov.

A. Antennule. B. First pleopod of female. C. Second pleopod of female.
 D. First pleopod of male. E. Uropod.

is indented on distal margin. Endopod eight-segmented and slender, subequal in length to sympod. A well-developed pseudobranchial lobe at base of first endopod segment, armed with a number of small plumose setae and one spine-like seta. Exopod robust, almost twice as long as endopod, setae along inner margin considerably shorter than those on outer margin.

Third pleopod of the male (Fig. 5B) with four-segmented endopod, the first segment large and bulbous, bearing a well-developed pseudobranchial lobe which is armed with a number of small plumose setae and a single spine-like seta. Second and third endopod segments small, each armed with two short plumose setae. The terminal segment of endopod reaching midpoint of first exopod segment, bearing two relatively long plumose setae. Exopod four-segmented, extending backwards to proximal end of the telson. First segment subequal in length to the second, which is about twice the length of the third. Fourth segment equal in length to the first segment. In some specimens a prominent protrusion along concave margin. Apex armed with two strong, barbed setae, the barbs of the one seta thin and spine-like, those on the other seta robust and considerably smaller in the distal half (Fig. 5C). Remaining pleopods in the male small, endopod reduced to a single segment.

Uropods (Fig. 4E) extending a short distance beyond telson. Exopod subequal in length to endopod, armed along outer margin with seventeen strong, regular spines which are finely plumose along the posterior margins. Apex of these spines with a short curved tip. Endopod more slender than exopod, tapering distally with seven long, curved irregularly-spaced spines amongst setae on inner margin. Two posteriorly directed spines present on inner side of statocyst. Anterior to the statocyst a row of small, graduated, closely set setae and a row of three small setae present. Outer margin of endopod with a row of plumose setae which increase in length posteriorly. Along the outer margin and set irregularly amongst the longer setae are a number of extremely short plumose setae.

Telson (Fig. 5D) about three times longer than its width at the base. Lateral margins armed with six strong spines of which the distal two on each side are longer than the others. Apical spines long and strong. Spaces between the last three lateral and terminal spines occupied with one to six small spinules which become more numerous distally. A strong spine present on each side of the cleft on the dorsal side. Cleft one-quarter of the length of the telson and armed with twenty to twenty-five spinules on either side. Spinules increase in length and robustness posteriorly.

Length

Adult female 13,3–17,5 mm

Adult male 11,0–14,5 mm

Remarks

Gastrosaccus bispinosa shows small affinities to *Gastrosaccus gordonae* Tattersall, 1952. It is readily distinguished, however, by the prominent spine on

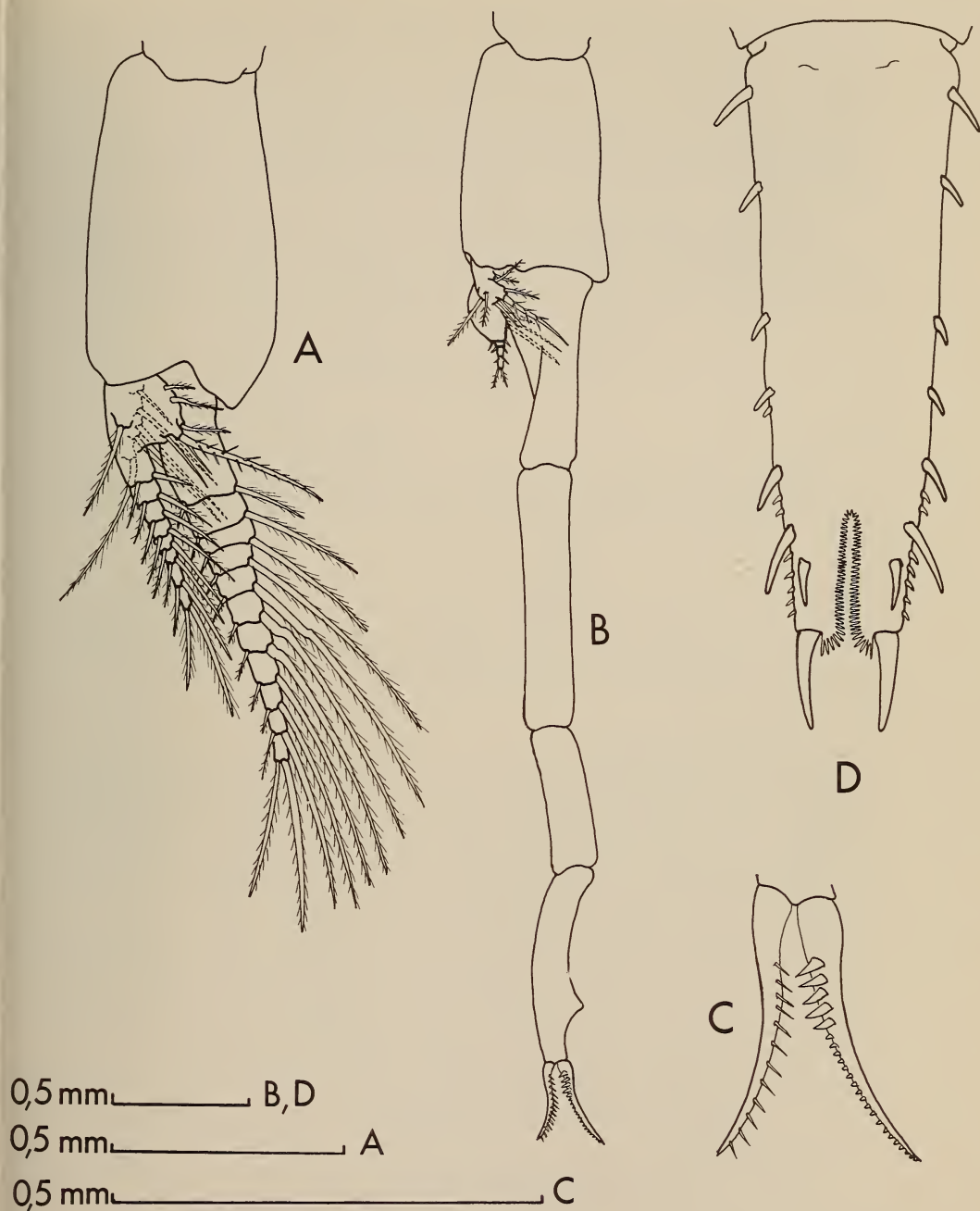


Fig. 5. *Gastrosaccus bispinosa* sp. nov.

A. Second pleopod of male. B. Third pleopod of male. C. Terminal setae of third pleopod of male. D. Telson.

each side of the cleft and the armature along the lateral margins of the telson. There is some diversity in the armament of the small spinules between the last three pairs of lateral and terminal spines. In some specimens the spinule in the space between the anti-penultimate and penultimate lateral spine was absent, while in others it was present on one side only. The number of spinules distal to the last pair of lateral spines also varied slightly and numbered either five or six on each side.

The species may also be identified by the form of the third pleopod of the male. The endopod is composed of only four segments, while the armature of the barbed setae at the base of the fourth exopod segment is characteristic.

Gastrosaccus longifissura sp. nov.

Figs 6–8

Holotype

SAM-A15751 lodged in the South African Museum, Cape Town. Adult female from Mgazana beach (31°42'S), collected by T. Wooldridge, 30 September 1977.

Paratypes

SAM-A15752 lodged in the South African Museum, Cape Town. Numerous adult males and adult females from Mgazana beach (31°42'S), collected by T. Wooldridge, 30 September 1977.

Description

Carapace (Fig. 6A) with anterior margin produced to form a triangular rostrum, acutely rounded. Posterior margin deeply and narrowly emarginate, exposing the last thoracic somite. The emargination is notched proximally, forming a forwardly directed lobe which overlaps the anterior portion of the emargination laterally. In lateral view the carapace extends posteriorly to cover the thorax entirely as well as the first abdominal somite.

Antennule (Fig. 6B), first segment of peduncle slightly shorter than second and third peduncular segments combined, outer distal angle with four or five plumose setae. Second segment of peduncle short, armed with three slender spines set obliquely along the outer margin. Inner distal corner with a fine setae. Third segment almost twice as long as broad, with a slender, curved, finger-shaped process dorsally on the outer distal corner. Outer flagellum swollen at the base and bearing long flattened setae. In the male a well-developed hirsute lobe present.

Antennal peduncle relatively long and extending forward almost to mid-point of the third segment of antennular peduncle (Fig. 6C). Second segment of antennal peduncle about two and a half times as long as broad, with four plumose setae on the inner lateral margin and two or three plumose setae at the distal corner. Third segment about one-third the length of second segment, with

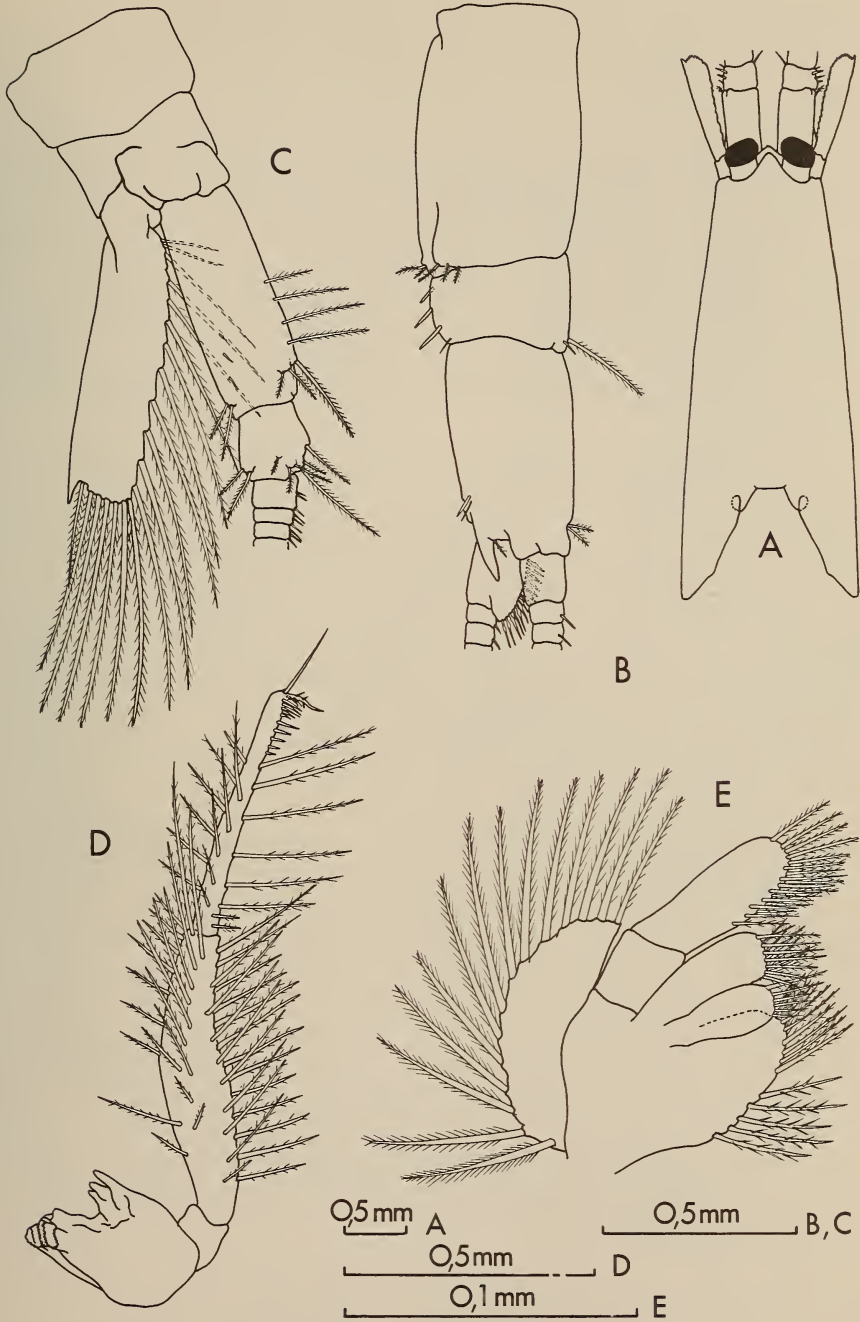


Fig. 6. *Gastrosaccus longifissura* sp. nov.
A. Carapace in dorsal view. B. Antennule. C. Antennae. D. Mandible. E. Maxilla.

eight plumose setae at the distal end. Antennal scale as long as peduncle and about four times as long as broad. Outer margin naked, terminating in a strong spine which does not extend beyond rounded apex of scale. Inner margin setose.

Mandible (Fig. 6D) without spine row. Palp long and slender, first segment unarmed. Setation of second and third segments as in Figure 6D. Third segment with a terminal comb-like process and two apical spines.

Maxillule (Fig. 7A), lobe from first segment with five relatively short spines and three long terminal spines, the armature of the shorter spines as in Figure 7A. Three terminal spines about twice as long as the shorter spines, each armed distally with about four strong teeth. Lobe from third segment armed with a close group of short, strong, spinous, slightly curved spines. A row of six spines along inner, subterminal margin, serrated distally and plumose proximally.

Maxilla (Fig. 6E), lobe from coxal segment with many well-developed spine-like setae, those at the apex shorter and more closely set. Lobe from basis incised to base, armed with many short setae along inner margin in the distal half and at the apex. Exopod with outer margin markedly convex, armed with about fourteen plumose setae.

First thoracic limb with well-developed endite on basal segment (Fig. 7B). Endopod short, robust, densely setose along inner margin of first segment. A single seta on outer distal angle of carpus. Propodus armed on outer margin only. Dactylus with many spine-like setae, without claw. First exopod segment large and expanded, the outer distal angle smooth (exopod twisted in figure). Flagellum fourteen-segmented, each segment with one or two plumose setae.

Second thoracic limb similar in form to first, dactylus of endopod with claw. First exopod segment with a well-developed tooth on outer distal angle.

Third to eighth thoracic limbs similar in form, but becoming progressively stronger and longer posteriorly. Carpus and propodus of endopod fused and divided into many short, subsegments. The number of these subsegments increases posteriorly as follows: in the third limb, eight; in the fourth, nine; in the fifth, ten; in the sixth, eleven; in the seventh, fourteen; in the eighth, sixteen. Each subsegment bears a brush of small setae and a single spine on the inner distal angle and a small spine on the outer distal angle. The first exopod segment in the third to seventh pairs of thoracic limbs armed with a strong tooth on the outer distal angle. In the eighth pair of appendages (Fig. 7C) this angle is smoothly rounded (exopod twisted in figure). Flagellum of exopod fourteen- to sixteen-segmented, each segment with one or two long plumose setae.

First pleopod of female (Fig. 7D) with long, slender sympod armed proximally with three, and distally with seven long plumose setae. Exopod about three times as long as wide, armed with one spine-like seta, seven short plumose setae, and two relatively long plumose setae at the distal end. Endopod

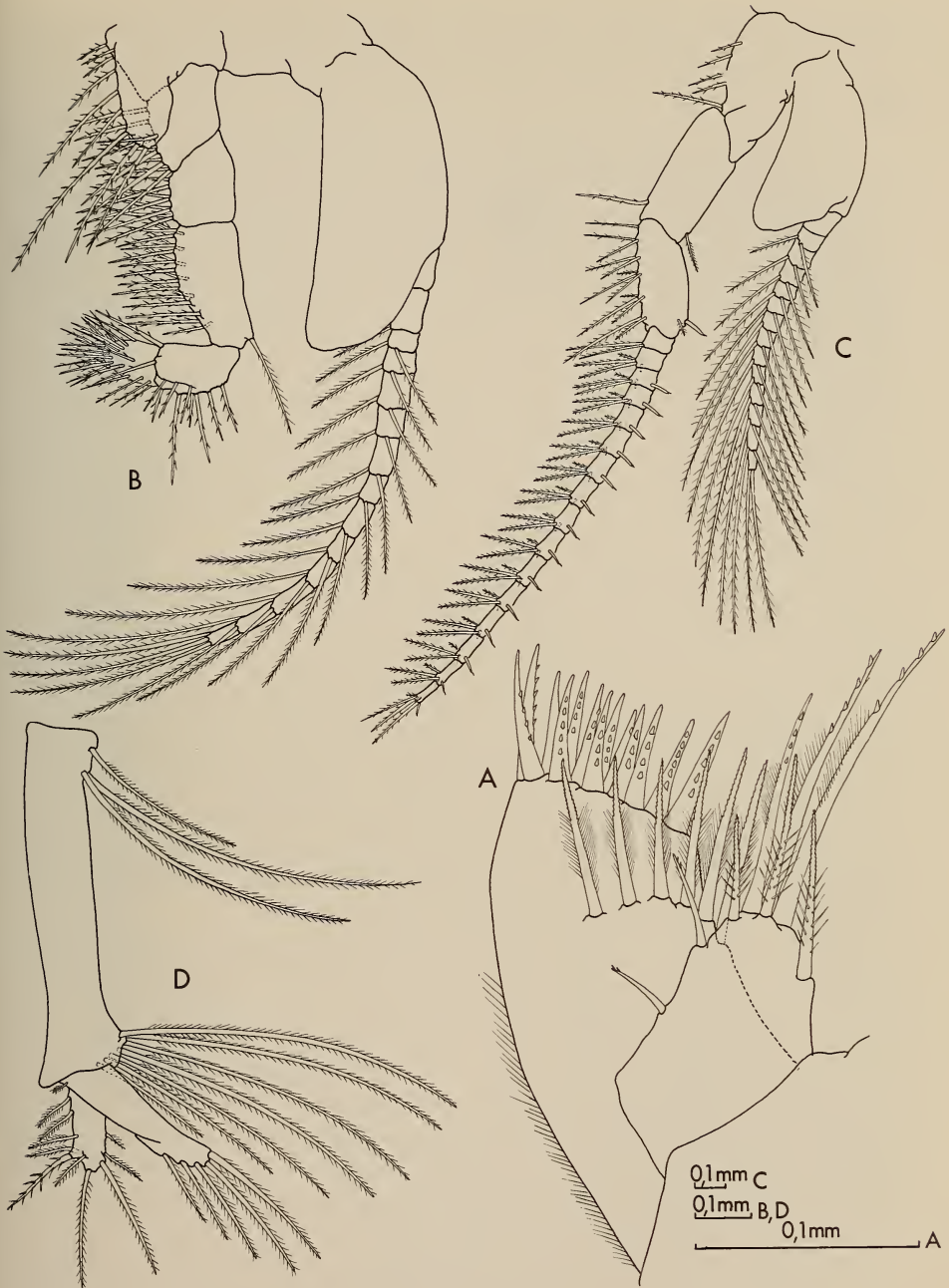


Fig. 7. *Gastrosaccus longifissura* sp. nov.
A. Maxillule. B. First thoracic appendage. C. Eighth thoracic appendage.
D. First pleopod of female.

almost four times as long as wide, armed with five plumose setae in the distal half. Remaining pleopods in the female becoming progressively longer on the posterior somites, each armed with many plumose setae and a single spine-like seta.

First pleopod of the male (Fig. 8B) with swollen sympod, the outer margin armed with ten long plumose setae. Endopod short, unsegmented, with two terminal plumose setae and a subterminal spine-like seta. Seven short plumose setae present, their relative positions illustrated in Figure 8B. Exopod with eight segments, the first almost twice as long as endopod. Each segment armed with two unequal setae except the last which has two equal terminal setae and a single sub-equal lateral seta.

Second pleopod of the male with sympod twice as long as wide (Fig. 8C). Endopod slender and five-segmented, almost three-quarters as long as sympod. A well-developed pseudobranchial lobe on first endopod segment, armed with a number of small plumose setae and one spine-like seta. Exopod robust, almost twice as long as endopod, setae along inner margin considerably shorter than those on the outer margin.

Third pleopod of the male with three-segmented endopod (Fig. 8D). The first segment large and bulbous, bearing a well-developed pseudobranchial lobe which is armed with a number of plumose setae and a single spine-like seta. Second and third endopod segments small, the terminal segment reaching almost one-third along the length of the first exopod segment and armed with two relatively long plumose setae. Exopod four-segmented, extending backwards to proximal end of telson. Exopod segments become progressively shorter distally. First segment more than twice as long as the fourth, which bears two non-plumose setae at the proximal end. Apex armed with two curved, barbed setae, one of which is two and a half to three times the length of the other. The longer seta is armed in the proximal half only. Remaining pleopods in the male small, endopod reduced to a single segment.

Uropod (Fig. 8E) extending a short distance beyond telson. Exopod as long as endopod and armed on the outer margin with sixteen strong, regular spines which are finely plumose along the posterior margins. Apex of these spines with a short, curved tip. Endopod more slender than exopod, tapering distally, with seven long, curved, irregularly spaced spines amongst setae on inner margin. A single posteriorly directed spine present on inner side of statocyst. Two rows of small, closely set setae present anterior to statocyst on dorsal side. Outer margin of endopod with a row of eight short plumose setae opposite statocyst. Outer margin of endopod armed posteriorly with a row of graduated plumose setae, which are interspersed with a number of short plumose setae.

Telson (Fig. 8F) about three times as long as broad at the base. Lateral margins armed with seven strong spines of which the distal two on each side are longer than the others. The spaces between the last three pairs of lateral and terminal spines occupied with two, three or four small spinules which become more numerous distally. Apical spines long and strong, cleft slightly less than

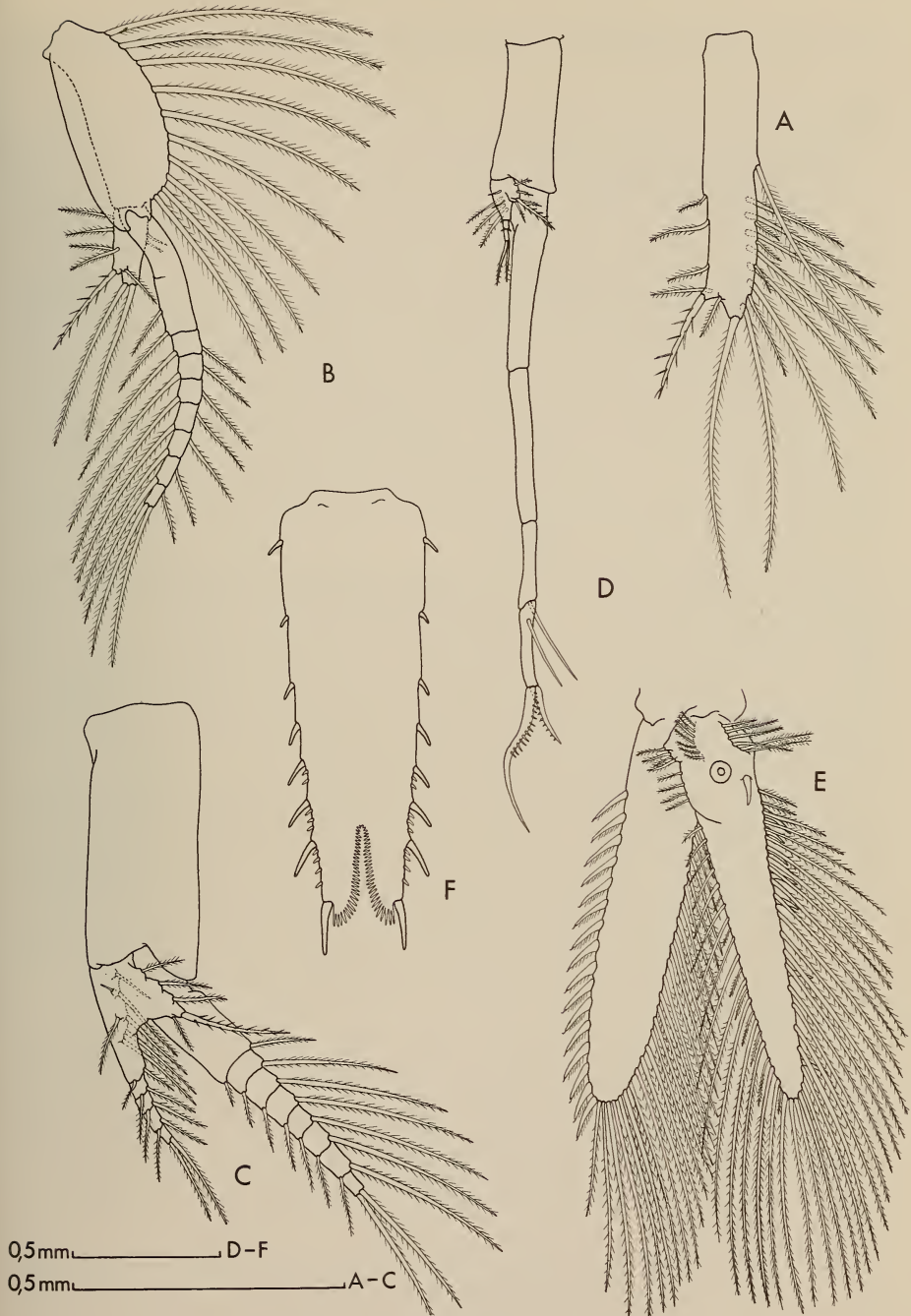


Fig. 8. *Gastrosaccus longifissura* sp. nov.

- A. Second pleopod of female. B. First pleopod of male. C. Second pleopod of male.
 D. Third pleopod of male. E. Uropod. F. Telson.

one-quarter of the length of the telson. Cleft armed with twenty to twenty-five small spinules on either side.

Length

Adult female, 8,5–10,5 mm

Adult male, 8,2–9,8 mm

Remarks

G. longifissura shows affinities to *G. bispinosa* sp. nov. and *G. gordonae* Tattersall, 1952. It is distinguished from *G. bispinosa* by the absence of a spine on each side of the cleft on the dorsal side of the telson. The third pleopod of the male is also characteristic for each species. The endopod is four-segmented in *G. bispinosa* and three-segmented in *G. longifissura*. The terminal setae on the fourth exopod segment are subequal in length in *G. bispinosa*. In *G. longifissura* one of the seta is two and a half to three times the length of the other, while the fourth exopod segment also bears two non-plumose setae at the proximal end. These setae are absent in *G. bispinosa*.

G. longifissura is distinguished from *G. gordonae* mainly in the form of the telson. In *G. gordonae*, there are eight large spines on the lateral margin of the telson (the terminal spine is not grouped with the lateral spines in the present work), with the spaces between the third to the terminal spine occupied with three to six small spinules on each side. In *G. longifissura* the lateral margin of the telson is armed with seven large spines. The spaces between the fifth to the terminal spines are occupied with two to four spinules.

Important differences between the two species are also found on the uropods. In *G. gordonae*, the endopod is armed on the inner side of the statocyst with two unequal, posteriorly directed spines. The inner margin is armed with a row of ten small, unequal spines extending from the statocyst to half-way along the margin. In the distal half there are three long, widely-spaced spines. In *G. longifissura* there is only one posteriorly directed spine on the inner side of the statocyst and seven long, irregularly spaced spines among the setae on the inner margin.

Differences are also apparent on the third pleopod of the male. In *G. gordonae* the endopod is well developed and seven-segmented, extending well beyond the midpoint of the first exopod segment. The fourth exopod segment is armed midway along its outer margin with one simple seta. In *G. longifissura* the endopod is three-segmented and extending about one-third along the length of the first exopod segment. The fourth exopod segment bears two simple setae at the proximal end.

The second male pleopod in *G. gordonae* has an eight-segmented endopod, while the setae on the outer distal corners of the second to the fourth exopod segments are modified, being thickened and having their proximal margins serrated. In *G. longifissura* the endopod is five-segmented, with no modifications to the outer setae on the exopod segments.

DISTRIBUTION OF *GASTROSACCUS* RECORDED IN
SOUTHERN AFRICA

Five species of *Gastrosaccus* are so far recorded from southern Africa. *G. dunckeri* is recorded from the Morrumbene estuary in Mozambique (Tattersall, O. S. 1958; Day 1974). *G. gordonae* is also reported from estuaries on the east coast (Tattersall, O. S. 1952; Scott *et al.* 1952; Day *et al.* 1954; Grindley & Wooldridge 1974), and from Saldanha Bay and Stompneus Bay on the West Coast (Lazarus 1975). *G. brevifissura* is recorded from estuarine and coastal waters (Tattersall, O. S. 1952; Day *et al.* 1954; Milland & Harrison 1954; Day 1958; Tattersall, O. S. 1962; Connell 1974; Lazarus 1975; Grindley 1977; Wooldridge 1976, 1977) as well as the intertidal zone (Tattersall, O. S. 1962). *G. sanctus* has been collected on several occasions off the coast of South Africa (Tattersall, O. S. 1957; Brown & Talbot 1972; Lazarus 1975).

G. psammodytes is the only species so far reported from sandy beaches in southern Africa and was until recently collected only in the intertidal and surf zone (Tattersall, O. S. 1958; Day 1958; Brown & Talbot 1972). McLachlan *et al.* (1978) have shown that numbers of *G. psammodytes* collected at night in the upper surf zone were significantly lower than numbers collected during the day and have suggested a general emergence from the sand after dark when the animals become planktonic in deeper waters. Samples collected at night (unpublished data) on a number of occasions in Algoa Bay with a WP-2 plankton net have shown them to be present in surface waters 250-300 m off shore, while Lazarus (1975) collected a number of specimens at night in vertical plankton samples off the west coast of South Africa. Similar activity patterns of diurnal burrowing and a nocturnal pelagic life have been shown for *G. sanctus* (Băcescu 1934; Moran 1972) and for *G. mediterraneus* and *G. spinifer* (Macquart-Moulin 1977). The most easterly extension of *G. psammodytes* is given as Kleinmond (33°33'S) in the eastern Cape Province (Brown & Talbot 1972). During the course of the present study it was collected at Gulu (33°08'S) and Nahoon (32°59'S) near East London, and at Kei Mouth (32°41'S).

Past workers divided the genus *Gastrosaccus* into two groups based on the form of the endopod of the third pleopod of the male. In the *Spinifer* group the endopod is multiarticulate, while in the *Normani* group it is reduced to a single segment or lacking. All species of *Gastrosaccus* from southern Africa are members of the *Spinifer* group with the exception of *G. dunckeri*. In this species the endopod of the third male pleopod is completely lacking.

A further broad separation of the species can be found in the form of the posterior margin of the carapace. Members of the genus from the southern African region belong to that group in which the posterior margin of the carapace is notched, forming an overlapping lobe on either side, or where the posterior margin of the carapace is produced to form a pair of lappets which are reflexed forward.

KEY TO THE SPECIES OF *GASTROSACCUS* RECORDED IN SOUTHERN AFRICA

Characteristics common to both sexes are used where possible.

1. Posterior margin of carapace cleft in the median line. Margins on each side of the cleft produced into two lappets which are reflexed forward 2
— Posterior margin of carapace forming an overlapping lobe on either side of the emargination, not reflexed 3
2. Endopod of third pleopod of the male eight-segmented; *Spinifer* group. Telson with five lateral spines and no spinules between them *G. sanctus* (van Beneden), 1861
— Endopod of third pleopod of the male lacking; *Normani* group. Telson with about ten to twelve lateral spines. No spinules between them *G. dunckeri* Zimmer, 1915
3. Cleft in telson deep, one-quarter to one-sixth the length of the telson 4
— Cleft in telson shallow, in some specimens little more than an emargination *G. brevifissura* Tattersall, 1952
4. Telson with six lateral spines not interspersed with small spinules, or at most one or two spinules between the larger spines on each side *G. psammodytes* Tattersall, 1958
— Telson with six, seven or eight lateral spines interspersed with at least six to eight small spinules between the larger spines on each side 5
5. Telson with eight lateral spines. Spaces between last six pairs of lateral and the terminal spines occupied with three to six spinules. Endopod of uropod with thirteen spines among setae along inner margin *G. gordonae* Tattersall, 1952
— Telson with six or seven lateral spines. Spaces between last three pairs of lateral and the terminal spines occupied with one to five spinules. Endopod of uropod with seven spines among the setae along the inner margin 6
6. Telson with a strong spine on each side of the cleft on the dorsal side *G. bispinosa* sp. nov.
Telson without a spine on each side of the cleft on the dorsal side *G. longifissura* sp. nov.

ACKNOWLEDGEMENTS

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REFERENCES

- BĂCESCU, M. 1934. Contribution a' l'etude des Mysidés de la Mer Noire ainsi que des limans et des lacs en relation avec la mer avec le Danube. *Annl. scient. Univ. Jassy* **19**: 331-338.
- BROWN, A. C. & TALBOT, M. S. 1972. The biology of the sandy beaches of the Cape Peninsula, South Africa. Part 3: A study of *Gastrosaccus psammodytes* Tattersall (Crustacea: Mysidacea). *Trans. R. Soc. S. Afr.* **40**: 309-333.
- CONNELL, A. D. 1974. Mysidacea of the Mtentu River estuary, Transkei, South Africa. *Zoologica afr.* **9**: 147-159.
- DAY, J. H. 1958. The Biology of Langebaan Lagoon: a study of the effect of shelter from wave action. *Trans. R. Soc. S. Afr.* **35**: 475-547.
- DAY, J. H. 1974. The ecology of Morrumbene estuary, Moçambique. *Trans. R. Soc. S. Afr.* **41**: 43-96.
- DAY, J. H., MILLARD, N. A. H. & BROEKHUYSEN, G. J. 1954. The ecology of South African estuaries. Part 4. The St. Lucia system. *Trans. R. Soc. S. Afr.* **34**: 129-156.
- GAULD, D. T. & BUCHANAN, J. B. 1956. The Fauna of sandy beaches in the Gold Coast. *Oikos* **7**: 293-301.
- GRINDLEY, J. R. & WOOLDRIDGE, T. 1974. The plankton of Richards Bay. *Hydrobiol. Bull.* **8**: 201-212.

- GRINDLEY, J. R. 1977. The zooplankton of Langebaan Lagoon and Saldanha Bay. *Trans. R. Soc. S. Afr.* **42**: 341-370.
- LAZARUS, B. I. 1975. The inshore zooplankton of the Western Cape. Unpublished Ph.D. thesis, University of Stellenbosch.
- MACQUART-MOULIN, C. 1977. Le contrôle de émergence et des nages nocturnes chez les Péracarides des plages de Méditerranée. *Eurydice affinis* Hansen (Isopoda), *Gastrosaccus mediterraneus* Băcescu, *Gastrosaccus spinifer* (Goës) (Mysidacea). *J. exp. mar. Biol. Ecol.* **27**: 61-81.
- McLACHLAN, A., WOOLDRIDGE, T. & VAN DER HORST, G. 1978. Tidal movements of the macrofauna on a high energy sandy beach in South Africa. *J. Zool., Lond.* (In press.)
- MILLARD, N. A. H. & HARRISON, A. D. 1954. The ecology of South African estuaries. Part 5. Richards Bay. *Trans. R. Soc. S. Afr.* **34**: 157-179.
- MORAN, S. 1972. Ecology and distribution of the sand-dwelling mysid *Gastrosaccus sanctus* (van Beneden 1961) along the Mediterranean sandy shore of Israel. *Crustaceana* Suppl. **3**: 357-361.
- NAKAZAWA, K. 1910. Notes on Japanese Schizopoda. *Annotnes zool. jap.* **7**: 247-261.
- SCOTT, K. M. F., HARRISON, A. D. & MACNAE, W. 1952. The ecology of South African estuaries. Part 2. The Klein River estuary, Hermanus, Cape. *Trans. R. Soc. S. Afr.* **33**: 283-332.
- TATTERSALL, O. S. 1952. Report on a small collection of Mysidacea from estuarine waters of South Africa. *Trans. R. Soc. S. Afr.* **33**: 153-188.
- TATTERSALL, O. S. 1957. Report on a small collection of Mysidacea from the Sierra Leone estuary together with a survey of the genus *Rhopalophthalmus terrantalis* Illig and a description of a new species of *Tenagomysis* from Lagos, Nigeria. *Proc. zool. Soc. Lond.* **129**: 81-128.
- TATTERSALL, O. S. 1958. Further notes on the Mysidacea from South African waters. *Trans. R. Soc. S. Afr.* **35**: 373-383.
- TATTERSALL, O. S. 1962. Report on a collection of Mysidacea from South African off-shore and coastal waters (1957-59) and from Zanzibar. *Proc. zool. Soc. Lond.* **139**: 221-247.
- TATTERSALL, W. M. 1927. Report on the Crustacea Mysidacea. *Trans. zool. Soc. Lond.* **22**: 185-199.
- TATTERSALL, W. M. & TATTERSALL, O. S. 1951. *The British Mysidacea*. London: Ray Society.
- VAN BENEDEN, P. J. 1861. Recherches sur les Crustacés du littoral de Belgique. Les Mysidés. *Mém. Acad. r. Belg. Cl. Sci.* **33**: 1-77.
- WOOLDRIDGE, T. H. 1976. The zooplankton of Msikaba estuary. *Zoologica afr.* **11**: 23-44.
- WOOLDRIDGE, T. H. 1977. The zooplankton of Mgazana, a Mangrove estuary in Transkei, southern Africa. *Zoologica afr.* **12**: 307-322.
- ZIMMER, C. 1915. Die Systematik der Tribus *Mysini* H. J. Hansen. *Zool. Anz.* **46**: 202-216.